International Journal of Business & Law Research 3(2):1-19, April-June 2015

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DETERMINANTS OF SUCCESSFUL IMPLEMENTATION OF CAPITAL EXPENDITURE PROJECTS IN THE BREWING SECTOR IN KENYA: A CASE OF EAST AFRICAN BREWERIES LIMITED

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ABSTRACT
In spite of the huge efforts and investments in the implementation of Capital Expenditure (CapEx) projects by many organizations, the success of such projects is the major problem as they are falling out at an alarming rate. The study examined the determinants of successful implementation of CapEx projects in the brewing sector in Kenya. The study was guided by the following objectives to establish the extent to which; technical complexity, high constraints on cost and time constraints ,project governance and external factors contributed to successful implementation of CapEx projects in EABL. The study adopted descriptive survey and case study design based on EABL. The study targeted 580 employees at EABL Head Quarters. A sample of 58 employees or 10% of the target population was considered use purpose survey method. The data was collected through the use of questionnaires, interviews and observation methods. Quantitative data was analyzed with help of SPSS version 20 and MS excel. The study findings showed that technical complexity, high constraints on cost and time constraints, project governance and external factors affected the successful implementation of CapEx projects brewing sector in Kenya. Technical complexity was the most significant factor and had a positive significant relationship at 5% level of significance and 95% confidence level.
Keywords: Capital Expenditure, project governance, technical complexity, project management

INTRODUCTION
Mir and Pinnington (2014) argue that despite the advancement in project management processes and tools, project success has not significantly improved. The (Standish Group International, 2009) shows that in the year 2008, only 32% of all the projects surveyed succeeded (i.e., were delivered on time, on budget, with required features and functions); 44% were challenged (late, over budget, and/or with less than the required features and functions); and 24% of projects failed (cancelled prior to completion or delivered and never used).

Although the literature on project management provides some advice on how to improve project management practice, organizations need guidance on which key project management improvement initiatives they should concentrate their efforts (Thomas & Mullaly, 2008; Shi, 2011). For example, (Shi, 2011) presents an approach called the Value Adding Path Map (VAPM), which can guide an organization, step by step, in introducing and implementing project management in a better way. Shi, 2011) argues that it is the coordination of the 'hard' and 'soft' project management system implementations that creates the largest value to an organization with the least investment. The 'hard' project management system means the traditional ways of project management implementation, including the project management processes, training and knowledge management, and tools and techniques. The 'soft' project management system includes the general management system and the project management culture, which means that the organization recognizes that project management contributes to the success of the organization. This study, sought to investigate determinants of successful implementation of CapEx projects in the brewing sector in Kenya.

The capital expenditure has been linked directly to firm performance (McConnell and Muscarella, 1985). When managers unexpectedly increase or decrease their capital expenditure, they will give a positive or negative signal about the firm's available positive net present value projects (Trueman, 1986). It is due to the valuation of capital expenditure which is considered to be related to individual firm's growth. Additionally, the firms which have a higher (lower) change in capital expenditure than their industry average provide positive (negative) valuation of signal (Lev and Thiagarajan, 1993).

The variations in the capital expenditure are also strongly and positively associated with excess returns (Kerstein and Kim, 1995). The amount of capital expenditure is likely to be determined by internal cash flow and insider ownership (Griner and Gordon, 1995), which have sometimes given positive or negative impact on firms' growth. Moreover, the investment in capital expenditure can boost the level of gross national product of countries which have a greater level of investment. The greater level of investment of countries will reflect the advancement of economic growth (Dornbusch and Fisher, 1987).

The Institute for Economics Researchers at the University of Munich (Ifo) performed a survey on corporation executives from around the world in 2006. In accordance with the conclusion of that survey, corporations spent more on capital expenditure in 2006 rather than in the year of 2005, for instance, on a new technologies and structures that make the capital expenditure continually to grow since the development among consumption and investments are expected the expansion patterns of demand, production, productivity, and employment to establish, which will shape global economic growth during 2006-2007 (Simos 2006).

Based on the Business Expectations survey of Limited Companies by the Department of Statistics (DOS) in Malaysia, there was a drastic increase in capital expenditure in the manufacturing companies from RM17 billion in 2003 to RM27.7 billion in 2005, followed by a decrease in 2006 of RM23 billion. This contributes significantly to the increase in Gross Domestic Product (GDP) from 45 percent in 2005 to 51 percent in 2006 (Economic Review, 2007). It can be said that the capital expenditure gives a significant contribution to the economic development in Malaysia. The investment activities of the executives from the world's top-twelve markets based on capital expenditure, which is known as G-12, have a combined gross domestic products (GDP) expressed in US dollars that accounts for 84 percent of global output. They raise their capital expenditure in order to increase gross domestic product (Simos, 2006). It is found that the G-12 investment on capital expenditure in 2006 was higher than a year ago. As a result of the high speed global economic growth, the executives feel confident of the economic situation in the future.

In the United Kingdom, (Li, Akintoye, Edwards and Hardcastle, 2005) contends that effective procurement, project implementation ability, government guarantees, and favourable economic conditions are critical success factors (CSFs) for public-private partnership projects. In Bulgaria, (Alexandrova and Ivanova, 2012) considers competence of project manager, competence of project team, quality of subcontractor services, and top management support as CSFs of project management. In Lithuania, (Gudiene, Ramelyte and Banaitis, 2013) states that project management's experience, project value, project manager's experience, experience of contractor, project size, competence of project team members, clear and realistic goals, decision making effectiveness of project management, and technical capability of project management are the most important success factors for construction projects.

Successful project execution is about getting a quality project done on time and on budget and more often, taking a lifecycle approach to make sure that the built asset is maintained over the long term. Execution strategies can be placed into one of the following four categories; namely, traditional, collaborative, integrative and partnership (KPMG, 2010).

Meroka (2011) contends that financial viability, management, market analysis and quality of project management are success factors of industrial and commercial projects in Kenya. (Mono, 2013) concludes that contractor's experience, contractor cash flow, site management, employer's ability to honour contractor's certificates on time, and adequacy of funding from external sources to be determinants of successful delivery of housing construction projects in the Ministry of Housing in Nairobi, Kenya. Wanjiku (2012) contends that financial issues, human resources conditions, site characteristics and design quality aspects to be factors influencing performance of contractors of government funded building projects in Kirinyaga County. Wambugu (2012) identifies strategy, project term capacity, project

communication, monitoring and evaluation, and client consultation as factors influencing success of Constituency Development Funds (CDF) projects in Nyeri County. Moreover, (Kabutu, 2013) argues that top management support, technology, training and competence, organizational resource, and funds management to be success factors for offshore software development and implementation projects in public organizations.

Statement of the Problem

This study focused on the most critical success factors in effective project management in CapEx funded projects in the brewing sector in Kenya. Companies are increasingly using project management to meet company goals. In recent years researchers have become increasingly interested in factors that may have an impact on project effectiveness and success of projects. However there is little research that shows how effectively projects are managed in a business organizational context especially in Africa. This study therefore aimed to partly fill this gap by representing results from case study and surveys of business organization practicing project management.

Previous studies have identified project personnel, commitment, communication, site management, supervision, client competencies, contactor competencies, top management support, project manager's experience amongst others as determinants of successful completion of various projects around the globe (Li et al, 2005; Gudiene et al, 2013; Yong, 2013; Chan et al ,2001; Alexandrova et al, 2012; Ondari, 2013). Kerzner, (1987) defines the determinants of success as those components that are required to establish an environment where projects are managed consistently with excellence.

Based on the statistics published by Malaysian Industrial Development Authority (MIDA) in August 2006, the number of approved manufacturing projects has increased by over 15% since year 2001. This approved manufacturing projects amounted to a total capital investment of over RM 31, 000 million in 2005 from both local and foreign investments, an increase of 8% from the previous year. 51% were successfully implemented and mostly comprised of production and machine installation projects, whereas 48.7% was in active planning stage. Only 0.3% of the total projects approved were temporary shelved due to certain unavoidable reason.

Research Objectives

The objective of the study was to investigate the determinants of successful implementation of CapEx projects in the brewing sector in Kenya.

The specific objectives of this study were as follows:

i. To establish the effect of technical complexity on successful implementation of CapEx projects in the brewing sector in Kenya.
ii. To find out the effect of cost and time constraints on successful implementation of CapEx projects in the brewing sector in Kenya
iii. To determine the effect project governance on successful implementation of CapEx projects in the brewing sector in Kenya.
iv. To establish the effect of external factors on successful implementation of CapEx project in the brewing sector in Kenya.

Research Questions

The study sought to answer the following research questions:

i. To what extent does technical complexity influence successful implementation of CapEx projects in the brewing sector in Kenya?
ii. How do cost and time constraints affect successful implementation of CapEx projects in the brewing sector in Kenya?
iii. To what extent do project governance influence successful implementation of CapEx projects in the brewing sector in Kenya?
iv. How do external factors influence successful implementation of CapEx projects in the brewing sector in Kenya?

Theoretical framework

Theoretical frameworks are explanations about the phenomenon and provide the researcher the lens to view the world (Ngugi, 2013).

Rogers Innovation Diffusion Theory

(Rogers, 1983) considers the process of innovation diffusion as one which is dictated by uncertainty reduction behaviour amongst potential adopters during the introduction of technological innovations. Despite innovations offering its adopters new ways of tackling day-to-day problems, the uncertainty as to whether the new ways will be superior to existing ones presents a considerable obstacle to the adoption process. (Niederman, Brancheau and Wetherbe, 1990) assert that to counter this uncertainty, potential adopters are motivated to seek additional information, particularly from their workplace peers.

(Rogers, 1983) suggests key characteristics of innovation that consistently influence the adoption of new technologies: complexity, which is the degree to which an innovation is perceived as being complicated to use; observability, which is the degree to which the results of an innovation are observable to others; demonstrability, which is tangibility of results of adopting an innovation relative advantage; compatibility, which is the extent to which an innovation is perceived to fit together with potential adopters' habits and practices; and trial ability, which is the degree to which innovation may be sufficiently tested prior to adoption.

Moreover, (Moore and Benbasat, 1991) add image and visibility to key features of innovation that consistently influence the adoption of new technologies. Image refers to the self-perception that adopting an innovation could result in enhanced social status for individual amongst his/her peers. Visibility on the other hand, refers to the degree to which prospective users see an innovation as being visible in the adoption context.

Several reasons exist as to why organisations may choose to invest in information technology (IT). These reasons include quicker response on current project, better financial control, better communications, flexibility to satisfy customers, possibility of sharing common information, easier to use lots of data and possibility of telecommunicating (Olalusi & Jesuloluwa, 2013). Nonetheless, these benefits derived from IT can be undermined by user reluctance to accept and use the new technologies at their disposal (Davis, 1989). However, IT promises can only be realized if the intended users of technology utilize it in manner that will contribute both to the strategic and operational objectives of the organization. One recent finding, for example, is that the firms with more slack resources and higher levels of managerial ownership innovate less when firm performance declines (Latham, Braun 2009). Another finding is that the network density of a firm's partners strengthens the influence of technological diversity, which in turn increases the firm's innovation performance (Phelps 2010). The theory of innovation diffusion therefore leads to Research question one.

Theory of constraints

(Goldratt & Cox, 1986) formulated this theory in production environment explaining that the throughput rate of a system is determined by bottleneck. This introduced theory of constraints as a means of managing a factory production process with an aim of maximizing throughput rate. Maximizing throughput rate would in turn maximize profit, cash flow and return on investment. In the multi-project environment, theory of constraints is applied as critical chain methodology using the same principle of a capacity constrained resource. This critical chain methodology is used by large companies such as Hitachi (Umble Umble & Murakami, 2006), ABB, Boeing, Helwett Packard and others (Stratton, 2011) for project management. Even a small company can implement the full Critical Chain as the software is available at USD250 (Stratton, 2011).

Critical chain was shown to be an approach with significant differences to traditional critical path scheduling (Steyn, 2001) (Rand, 2000) (Lechler, Ronen &Stohr, 2005). In a large multi-project environment, like construction industry, (Jyh-Bin Yang, 2007) pointed out that a construction industry would benefit greatly from critical chain scheduling. The construction industry uses multiple costly resources in the context of multiple projects executed by a single company. He pointed out that there are definite benefits and did so from a theoretical basis. Case studies exists for large companies such as Impala Platinum (Philis & Gumede, 2011) and complex project such as refurbishment of C-5 aircraft (Best, 2006) but literature is sparse for small to medium OMEs(Original Equipment Manufacturers).

Max Weber's Theory of Bureaucracy

(Weber, 1947) in his book entitled, 'The Theory of Social and Economic Organization' introduces his theory of Bureaucracy. (Weber, 1997) argues that Bureaucracy describes a particular form of organization structure based on the acceptance of authority arising from the office of the job-holder, as bounded by a set of rules and procedures. The word bureaucracy is derived from two words; "bureau" and "kratos". While word "bureau" refers to the office, the Greek suffix "kratos" means power or rule. Thus word "bureaucracy' refers to the power of the office (Hummel, 1998).

According to Weber, the evolution of societies is facilitated by three types of authority that he identifies as traditional, charismatic, and legal-rational authority (Fry, 1989). Traditional authority is based on tradition and custom. Thus hereditary rulers are accepted by those they govern on the basis of their birth, rather than on personal merit, or by election (Weber, 1947). On the other hand, charismatic authority is based on the personal qualities of the leader. Charismatic leaders win the confidence of their followers by sheer personality as much as by other factors. Rational-legal authority is derived from the formal office, or position, of the job-holder, as bounded by the rules and procedures of the organization (Weber, 1947).

It is the legal-rational type of authority that constitutes the basis of Weber's concept of bureaucracy and the foundation of modern civilization as it is premised on "a belief in the legitimacy of the pattern of normative rules and the rights to those elevated to authority under such rules to issue commands" (Stillman, 2000). Key features of the ideal type of bureaucracy that Weber presents are division of labour, hierarchal order, written documents, well trained staff and experts, full working capacity of the officials, and application of impersonal rules (Crozier, 1964). Thus, Max Weber's theory of bureaucracy therefore leads to Research question three.

Probability theory of management

Uncertainty management is increasingly used in project management to bring balanced approach to opportunity and threat management. Uncertainty management includes not just managing threats, opportunities and their implication but also identifying and managing all sources of uncertainty which develop the perception of threats and opportunities (Ward & Chapman, 2003). In the same paper, they (Ward & Chapman, 2003) have suggested various sources of uncertainty in projects including "variability associated with project parameters, design and logic, objectives, priorities and relationships between partners".

Previous track record of a company in completing the project within the time specified at the beginning does not necessarily indicate that all future projects will complete as per schedule. This is primarily because uncertainty is depended upon elements of the project management as mentioned earlier (Ward & Chapman, 2003). This clearly demonstrates that probability theory plays minimal role in determining the desired outcome in project risk or uncertainty management. (Kwak, 2002) defines CSFs as the "internal and external, visible and invisible factors that influence the environment and create a high amount of risk in accomplishing the project objectives." (Belassi and Tukel, 1996) group CSFs into four categories: factors related to the project, factors related to organization and factors related to the acceptance, availability of resources and effective implementation, which lead to success or failure.

Conceptual Framework

According to (Mugenda, 2008), conceptual framework is a concise description of the phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study. (Young, 2009) defines conceptual framework as a diagrammatical representation that shows the relationship between dependent variable and independent variables. This study sought to establish the determinants of successful implementation of CapEx projects in the brewing sector in Kenya. The independent variables in this study included Technical complexity, high constraints on cost and time, project governance and external factors. On the other hand, the dependent variable was successful implementation of CapEx projects.

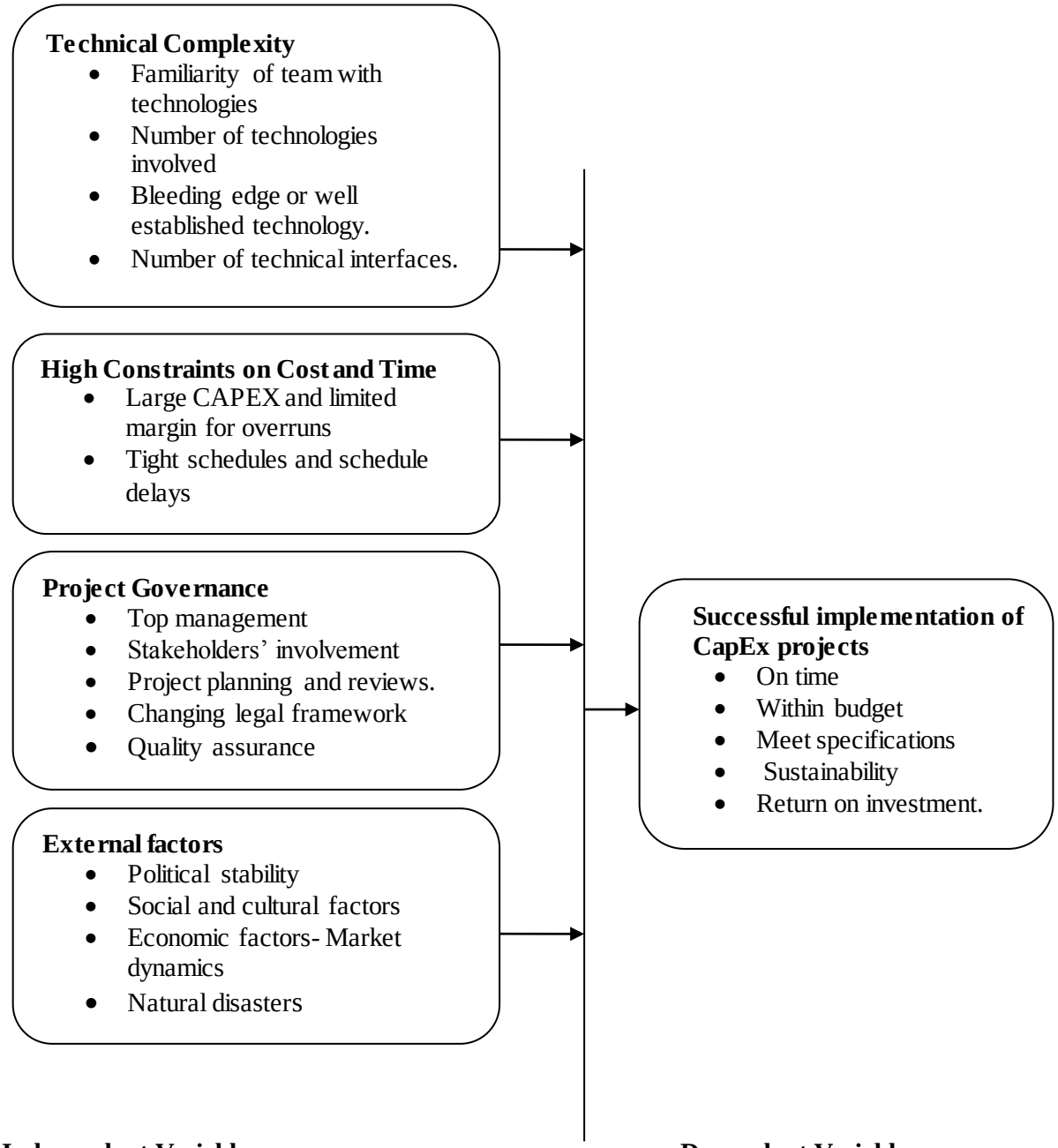

Figure 1: Conceptual framework for the study

RESEARCH METHODOLOGY

The research study adopted a descriptive survey design. A descriptive study is concerned with finding out the what, where and how of a phenomenon (Donald & Pamela, 1998). Data available from the EABL records revealed there were 580 employees at EABL Head Quarters. The target population was 580 employees who were divided into three categories of the organization namely, management, union members and the contractors.

The population was grouped into different categories called stratum on the basis of divisions. Mugenda & Mugenda, (1999) noted that a sample size of 10% of the target population is large enough so long as it allows for reliable data analysis and allows testing for significance of differences between estimates. Therefore, a proportionate sample size of approximate 58 respondents which is 10% of the population was selected using stratified random sampling technique.

Table 1: Sample size

Stratum	Target population	Sample	Percentage (%)
Management	80	8	10
Union members	228	23	10
Contractors	272	27	10
Total	**580**	**58**	**10**

The study relied mainly on primary data. Structured questionnaires were used in this study to collect data. The questionnaires comprised of both open ended and closed ended questions. The closed ended questions were used to limit the respondents to given variables in which the researcher is interested, while open ended questions were used in order to give the respondents room to express their views in a more pragmatic manner. A total of 58 questionnaires were administered. Out of these, 38 respondents filled in and returned questionnaires giving a response rate of 65.51%.

A pilot study was undertaken on at least 4 respondents to test the reliability and validity of the questionnaire. The rule of thumb is that 1% of the sample should constitute the pilot test (Creswell, 2003). Constructs used in the study were tested for internal consistency and a value of 0.82 was achieved using Cronbach alpha formula for determining reliability of the research instruments

Data collected was analyzed using both quantitative and qualitative methods. Quantitative data was analyzed to yield descriptive and inferential statistics with the help of statistical package of social sciences (SPSS) version 20 and MS excel. The findings were presented using tables and graphs for further analysis and to facilitate comparison. This generated quantitative reports through tabulations, percentages, and measure of central tendency. The researcher further adopted a multiple regression model at 5% level of significance and 95% level of confidence to study the strength and direction of the relationship between the independent variables (Technical complexity, Cost and time constraints, Project governance and External factors) and effect on the dependent variable (successful implementation of CapEx projects in brewing sector in Kenya).

The equation for successful implementation of CapEx projects was expressed in the following equation**:**

$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon$, where,

Y= Success implementation of CapEx projects in brewing sector in Kenya, $\beta 0$= constant (coefficient of intercept), X1= Technical complexity, X2= High constraints on cost and time, X3= Project governance X4= External factors, ε = error term, $\beta 1 \ldots\ldots \beta 4$= regression coefficient of four variables.

RESULTS AND DISCUSSION

Gender of Respondents

The research went further to establish the gender of the respondents from the identified area of study. This information is shown in the Table 1.

Table 1: Gender of Respondents

Gender	Frequency	Percentage
Female	14	36.84
Male	24	63.16
Total	**38**	**100**

It was found out that 36.84% of the respondents were female and 63.16% were male. This implies that majority of respondents were male who were involved in the implementation of CapEx projects in the brewing sector. This finding is in line with Steinfort (2011) who observed that the CapEx projects have gender balance for successful implementation of such projects.

Distribution of respondents' age

The study proceeded further to establish the distribution of the respondents' age. This information is shown in the Table 2**;**

Table 2: Age of the respondents

Age	Frequency	Percentage
Under 25 years	6	15.79
25 to 35 years	13	34.21
36 to 45 years	11	28.95
Above 45 years	8	21.05
Total	**38**	**100**

From the findings in Table 2, the highest percentage of the respondents 34.21% was 25 to 35 years of age , 15.79% for under 25 years, 28.95% for 36 to 45 years and 21.05% for above 45 years. The high percentage of respondents aged between 25 to 45 years may be explained by older people are more likely to participate and get involved in CapEx implementation projects than young people. Therefore, this finding may also be significant for enhancing implementation of the projects as established in the study.
The findings of the study are in line with APM (2005) who indicated that for improving performance of these projects, there is need to involve middle aged people majority are energetic, experienced and educated looking forward to governance of project management also support the means by which the corporate board and other major project stakeholders are provided with timely, relevant and reliable information for successful implementation of CapEx projects in the brewing sector.

Respondents' length of service in the sector

The research went further to find out on the length of service in the sector. This information is shown in Table 3;

Table 3: Length of service in the sector

Years	Frequency	Percentage
Less than 1 year	10	26.32
Between 1 and 5 years	15	39.47
Between 5 to 10 years	8	21.05
Above 10 years	5	13.16
Total	**38**	**100**

From the findings in Table 3, most of the household respondents (39.47%) had worked for 1 - 5 years, 26.32% for less than a year, 21.05% for 5 to 10 years and 13.16% for above 10 years. This implies that the respondents had worked for a relatively long period to give credible information about the implementation of CapEx projects in the study area.

Respondents' position in the organization

The study sought to establish the respondents' position in the organization. The findings were as shown in Figure 2. From the results in figure 2, most of the respondents (55.26%) were contractors, 28.95% were in management and 15.79% were union members working in the implementation of CapEx projects in the study area. This implies that contractors would give credible information for the study as they were directly involved in the implementation of these projects.

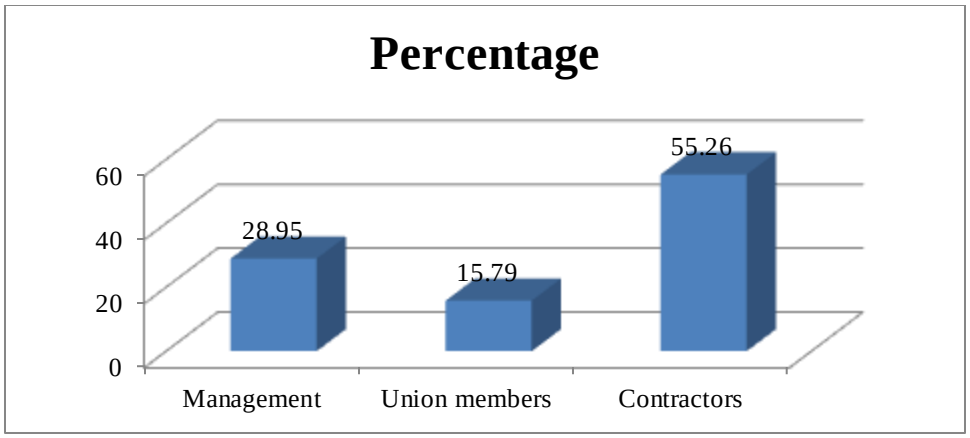

Figure 2: Respondents' position in the organization

Study Variables

Technical complexity

The first objective of the study was to establish the effect of technical complexity on successful implementation of CapEx projects in brewing sector in Kenya.

Technical complexity Influence on successful implementation of CapEx projects in EABL

The research sought to establish whether technical complexity Influence successful implementation of CapEx projects EABL. The findings were as shown in table 4.6;

Table 4: Technical complexity Influence on successful implementation of CapEx projects in EABL

	Frequency	Percentage
Yes	24	63.16
No	14	36.84
Total	**38**	**100**

From the study findings in Table 4 the majority (63.16%) of the respondents agreed that technical complexity influence successful implementation of CapEx projects in the EABL while 36.84% posited that technical complexity does not influence successful implementation of CapEx projects in the EABL. This depicts that the technical complexity Influenced on successful implementation of CapEx projects in the in the study area

Extent of technical complexity on successful implementation of CapEx projects in EABL

The respondents were further asked to identify the extent that technical complexity Influence on successful implementation of CapEx projects in the study area. The information is as shown in Table 5.

From the results of the study in Table 5, the majority of the respondents (39.47%) stated that technical complexity affected successful implementation of implementation of CapEx projects in EABL to a very great extent, another 26.32% and 21.05% of respondents respectively indicated that the projects were affected to a great extent and moderate extent while 13.16% of the respondents posited to a low extent.

Table 5: Extent of technical complexity on successful implementation of CapEx projects in EABL

Extent	**Respondents**	
	Frequency	**Percentage**
Very great extent	10	26.32
Great extent	15	39.47
Moderate extent	8	21.05
Low extent	5	13.16
Very low extent	-	-
Total	**38**	**100**

Aspects of technical complexity on successful implementation of CapEx projects in EABL

The study sought to establish the aspects of technical complexity on successful implementation of CapEx projects in EABL. The respondents were requested to indicate their level of agreement on the extent to which they affected the successful implementation of CapEx projects in EABL. The responses were rated on a five point Likert scale where: 1 - Strongly Disagree 2 - Disagree 3 - Neutral 4- Agree and 5- Strongly Agree. The mean was generated from SPSS and is as illustrated in Table 6;

Table 6: Aspects of technical complexity on successful implementation of CapEx projects in EABL

Statements	Mean
Familiarity of team with technologies	4.65
Number of technologies involved	4.25
Bleeding edge or well established technology	4.06
Number of technical interfaces	4.01

From the findings in Table 6, the majority of the respondents agreed Familiarity of team with technologies (M=4.65); Number of technologies involved (M=4.25); Bleeding edge or well established technology (M=4.06); Number of technical interfaces (M=4.01).This implies that familiarization of the team with the technologies together with other aspects enhances successful implementation of CapEx projects in the study area. This finding agrees with most of literature such as Erling (2006), who observed that if a project is viewed successful then it need to be determined by aspects of technical complexity as mentioned above.

Use of technology and equipment in CapEx projects

The research sought to establish whether the contracted companies use the newest technology and equipment on successful implementation of CapEx projects EABL. The findings were as shown below in Table 7;

Table 7: Use of technology and equipment in CapEx projects

	Frequency	Percentage
Yes	28	73.68
No	10	26.32
Total	**38**	**100**

From the study findings in Table 7 the majority (73.68%) of the respondents agreed that the contracted companies use the newest technology and equipment in CapEx projects in the study area while 26.32% of the respondents stated that they didn't use the newest technology in the implementation of projects. This depicts that the use the newest technology and equipment influenced successful implementation of CapEx projects in the in the EABL.

Newest technology and equipment in CapEx projects

The respondents were requested to state the newest technology and equipment they use during the implementation of CapEx projects. They stated that they used electric scanning equipment for identifying in built or hidden reinforcement bars and electronic theodolites; computers for a common database installed in the computers in assistance of training provided to use the system; use of new hoisting cranes and use of modern scaffolding equipment; electrical scanning equipments.

Cost and time constraints

The second objective of the study was to assess how cost and time constraints affect successful implementation of CapEx projects in brewing sector in Kenya.

Extent of cost and time constraints on successful implementation of CapEx projects in EABL

The respondents were asked to identify the extent that cost and time constraints affected successful implementation of CapEx projects in the study area. The information is as shown in Table 8.

Table 8: Extent of cost and time constraints on successful implementation of CapEx projects in EABL

Extent	Respondents	
	Frequency	Percentage
Very great extent	11	28.95
Great extent	14	36.84
Moderate extent	6	15.79
Low extent	5	13.16
Very low extent	2	5.26
Total	**38**	**100**

From the results of the study in Table 8, the majority of the respondents (36.84%) stated that cost and time constraints affected very great extent successful implementation of implementation of CapEx projects in EABL, another 28.95% to great extent, 36.84% great moderate extent, 15.79% low extent and 5.26% to a very low extent. This implies that project cost and time constraints did affect the successful implementation of CapEx projects in EABL to a great extent.

Aspects of project cost and time constraints on successful implementation of CapEx projects in EABL

The study sought to establish the aspects of project cost and time constraints on successful implementation of CapEx projects in EABL. The respondents were requested to indicate their level of agreement on the extent to which they affected the successful implementation of CapEx projects in EABL. The responses were rated on a five point Likert scale where: 1 – No extent at all; 2 – Low extent; 3 – Moderate extent; 4- Great extent and 5- Very great extent. The mean was generated from SPSS and is as illustrated in Table 9;

Table 9. Aspects of project cost and time constraints on successful implementation of CapEx projects in EABL

Statements	Mean
Large CapEx projects(scope)	4.67
Limited margin for cost overruns	4.09
Tight schedule	4.44
Project quality specifications	4.65

From the findings in Table 9, the majority of the respondents Large CapEx projects (scope) (M=4.67); Limited margin for cost overruns (M=4.09); Tight schedule (M=4.44); Project quality specifications (M=4.65).This implies that large CapEx projects (scope) affected most the successful implementation of CapEx projects in the study area.

Project governance

The third objective of the study was to explore the effect of project governance on successful implementation of CapEx projects in brewing sector in Kenya.

.***Type of organizational structure in EABL***

The study sought to establish from respondents the type of organization structure used in the study area. The results were as follows in figure 3;

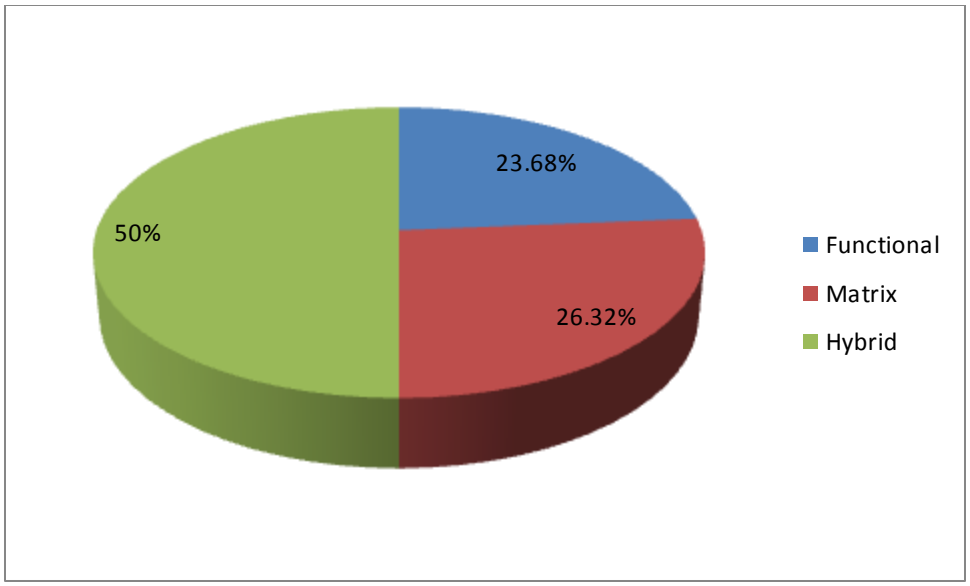

Figure 3: Type of organizational structure in EABL

From the results of the study, the majority of respondents (50%) indicated that hybrid organizational structure was used by EABL as governance system to implement the CapEx projects in EABL and 26.38 stated that there was matrix and 26.425 indicated hybrid system. This implies that hybrid system of governance is preferred in the study area to implement such projects.

Extent of Top Management Support

The respondents were asked to identify the extent that of top management support affected successful implementation of CapEx projects in the study area. The information is as shown in Table 10.

Table 10. Extent of top management support on successful implementation of CapEx projects in EABL

Extent	Respondents	
	Frequency	**Percentage**
Very great extent	19	50.00
Great extent	14	36.85
Moderate extent	3	7.89
Low extent	1	2.63
Very low extent	1	2.63
Total	**38**	**100**

From the results of the study in Table 10, the majority of the respondents (50%) stated that top management support affected to a very great extent successful implementation of implementation of CapEx projects in EABL, another 36.85% great extent, 7.89% moderate extent, 2.63% for both low extent and a very low extent. This implies that top management support did affect the successful implementation of CapEx projects in EABL to a very great extent.

Stakeholders influence on successful implementation of CapEx projects in EABL

The research sought to establish whether the stakeholders influence affected successful implementation of CapEx projects EABL. The findings were as shown below in Table 11.

Table 11: Stakeholders influence on successful implementation of CapEx projects in EABL

	Frequency	**Percentage**
Yes	28	73.68
No	10	26.32
Total	**38**	**100**

From the study findings in Table 10 the majority (73.68%) of the respondents agreed that the stakeholders' influence affected successful implementation of CapEx projects in the study area while 26.32% of the respondents stated stakeholders' influence didn't affect successful implementation of CapEx projects. This implies that stakeholders' influence affected successful implementation of CapEx projects in EABL.

Project governance on successful implementation of CapEx projects in EABL

The study sought to establish the extent to which project governance influenced successful implementation of CapEx projects in EABL. The respondents were requested to indicate their level of agreement on the extent to which the following statements affected the successful implementation of CapEx projects in EABL. The responses were rated on a five point Likert scale where: 1 – No extent at all; 2 – Low extent; 3 – Moderate extent; 4- Great extent and 5- Very great extent. The mean was generated from SPSS version 20 and is as illustrated in Table 12.

Table 12. Project governance on successful implementation of CapEx projects in EABL

Statements	Mean
Top management support	4.55
Stakeholders' involvement	4.67
Logistical constraints	4.89
Legal framework changes	4.65
Quality assurance	4.77

From the findings in Table 12, the majority of the respondents Logistical constraints (M=4.89); Quality assurance (M=4.77); Stakeholders' involvement (M=4.67); Legal framework changes (M=4.65); Top management support (M=4.55). This implies that logistical constraints affected most the successful implementation of CapEx projects in the study area. The findings are in line with Lee et al (2011) who argue that project governance which incorporates Top management support, Stakeholders' involvement, Logistical constraints, Legal framework changes plays a significant role in successful implementation of CapEx projects by organizations.

External factors

The fourth objective of the study was to explore the effect of external factors on successful implementation of CapEx projects in brewing sector in Kenya.

Project resources influence on successful implementation of CapEx projects in EABL

The respondents were asked to identify the extent that of project resources affected successful implementation of CapEx projects in the study area. The information is as shown in Table 13;

Table 13: Project resources influence on successful implementation of CapEx projects in EABL

Extent	Respondents	
	Frequency	Percentage
Very great extent	17	44.74
Great extent	16	42.11
Moderate extent	3	7.89
Low extent	1	2.63
Very low extent	1	2.63
Total	**38**	**100**

From the results of the study in Table 13, the majority of the respondents (44.74%) stated that project resources to a very great extent affected successful implementation of CapEx projects in EABL, another 42.11% great extent, 7.89% moderate extent, 2.63% for both low extent and a very low extent. This implies that project resources did affect the successful implementation of CapEx projects in EABL to a very great extent. The findings are in agreement with the findings of Rajib (2013) who observed that project resources influence the successful implementation of a project.

External factors influence on successful implementation of CapEx projects in EABL

The study sought to establish the extent to which external factors influenced successful implementation of CapEx projects in EABL. The respondents were requested to indicate their level of agreement on the extent to which the following statements and responses were rated on a five point Likert scale where: 1 – Strongly disagree; 2 – Disagree; 3 – Neutral; 4- Agree and 5- Strongly agree. The mean was generated from SPSS version 20 and is as illustrated in Table 13;

Table 13: External factors on successful implementation of CapEx projects in EABL

Statements	Mean
Political instability	4.87
Economic conditions	4.67
Natural disasters	4.11
Market dynamics	4.66

From the results in Table 13; political instability M=4.87); Economic conditions (M=4.67); Natural disasters (M=4.11); Market dynamics (M=4.66); this implies that political instability affected most the successful implementation of CapEx projects in the study area.

Multiple Regression Analysis

Multiple regression analysis was used to determine influence of independent variables affected the dependent variable. The researcher applied SPSS version 20 to code, enter and compute the measurements of the multiple regressions for the study. The results are shown in Table 14;

Table 14: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.888[a]	.789	.663	.37024

a. Predictors: (Constant), Technical complexity, Cost and time constraints, project governance, External factors

The independent variables (Technical complexity, Cost and time constraints, project governance, External factors) used to predict the value of the dependent variable (Successful implementation of CapEx projects in brewing sector in Kenya). According to the Model Summary table 4.17, A value of 0.888, in this result, indicates a good level of prediction. The "R Square" column represents the R^2 value (0.789) that is the coefficient of determination, which is the proportion of variance in the dependent variable that can be explained by the independent variables (technically, it is the proportion of variation accounted for by the regression model above and beyond the mean model). This means 78.9% of the variability of the dependent variable (Successful implementation of CapEx projects in brewing sector in Kenya). This means that the other factors not studied in this research contribute 21.1% of the determinants. Therefore, further research should be conducted to investigate the other factors (21.1%) that determine the successful implementation of CapEx projects in brewing sector in Kenya.

Analysis of variance (ANOVA)

Table 15. Analysis of Variance[a]

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	69.4567	4	17.3642	16.1467	.0000[b]
	Residual	131.9604	33	1.0754		
	Total	201.4171	37			

a. Dependent Variable: successful implementation of CapEx projects in the brewing sector in Kenya.

b. Predictors: (Constant), Technical complexity, Cost and time constraints, project governance, External factors

The F-Ratio in the ANOVA Table 16 was used to test whether the overall regression model is a good fit for the data. The reports summary ANOVA and F statistic (16.1467) is significant at 0.05 confidence level. The value of F is large enough to conclude that the set of independent variables; Technical complexity, Cost and time constraints, project governance, External factors affect successful implementation of CapEx projects in brewing sector in Kenya. The table shows that the independent variables statistically significantly predict the dependent variable, $F(4,33) = 16.1467$, $p < .0005$

Table 16: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	74.778	2.483		2.729	.002
	Technical complexity	.796	.387	.202	.635	.000
	Cost and time constraints	.793	.236	.123	.376	.001
	Project governance	.659	.285	.017	2.311	.003
	External factors	.622	.246	.209	.469	.004

a. Dependent Variable: successful implementation of CapEx projects in brewing sector in Kenya

The general form of the equation to predict successful implementation of CapEx projects in brewing sector in Kenya from Technical complexity, Cost and time constraints, project governance, External factors is:

$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon$ Where Y = successful implementation of CapEx projects in brewing sector in Kenya; β0 = Constant Term; β1, β2, and β3 = Beta coefficients; X1= Technical complexity; X2= Cost and time constraints; X3= project governance; X4 = External factors and ε = Error term. The model equation would be;

$Y=74.778+ 0.796X_1 + 0.793X_2 + 0.659X_3 + 0.622X_4$.

Predicted successful implementation of CapEx projects in brewing sector in Kenya = 74.778 + (0.796 x Technical complexity) + (0.793 x Cost and time constraints) + (0.659 x project governance) + (0.622 x External factors). This is obtained from the Coefficients table, as shown in table 4.19, from above regression equation; the study found out that when all independent variables (Technical complexity, Cost and time constraints, project governance, External factors) are kept constant at zero the successful implementation of CapEx projects in brewing sector in Kenya will be at 74.778. At one percent change in Technical complexity will lead to (0.796%) variations in the successful implementation of CapEx projects in brewing sector in Kenya. Also a one percent change in Cost and time constraints will lead to (0.793%) variations in the successful implementation of CapEx projects in brewing sector in Kenya. Further, a one percent change in project governance will lead to (0.659%) variations in the successful implementation of CapEx projects in brewing sector in Kenya and one percent increase in External factors will lead to (0.622%) variations in the successful implementation of CapEx projects in brewing sector in Kenya. This concludes that technical complexity determine more to successful implementation of CapEx projects in brewing sector in Kenya followed by cost and time constraints determinants. The findings corroborates with Kabutu (2013) who argues that technical complexities and technology determines the success of any project being implemented. These are the success factors in implementation of projects in public and private organizations (Wambugu, 2012)

To test for the statistical significance of each of the independent variables, it was necessary to test whether the unstandardized (or standardized) coefficients are equal to 0 (zero) in the population. If $p < .05$, we can conclude that the coefficients are statistically significantly different to 0 (zero). In general the multiple regression predicted successful implementation of CapEx projects in brewing sector in Kenya that independent variables statistically significantly predicted successful implementation of CapEx projects in brewing sector in Kenya $F(4,33) = 16.1467$, $p < .0005$, $R^2 = .789$ and all four independent variables added statistically significantly to the prediction $p < .05$.

At 5% level of significance and 95% level of confidence, technical complexity had a 0.000 level of significance; cost and time constraints showed a 0.001 level of significance, project governance determinant showed a 0.003 level of significance and External factors had a 0.004 level of significance; hence the most significant factor is technical complexity. The findings are in line with David and Lewis (2006) who indicated that the technical complexity of any given project define technical scope that leads to design of implementation to determine the project's success.

CONCLUSIONS

The study concludes that technical complexity, cost and time constraints, project governance and external factors determine the success of CapEx projects being implemented in brewing sector in Kenya. The technical complexity plays a critical role as it was the most significant factor followed by cost and time constraints. The project governance and external factors equally played a significant role in influencing success in implementation of such projects. The study also concludes that 78.9% of the technical complexity, cost and time constraints, project governance and external factors explained the Successful implementation of CapEx projects in brewing sector in the study area. This means that the other factors not studied in this research contribute 21.1% of the other determinants. Therefore, the researcher concludes to say that there is need for further research to be conducted to investigate the other factors (21.1%) that determine the successful implementation of CapEx projects in brewing sector in Kenya

RECOMMENDATIONS

The study recommends that improvement in technology and equipment helps to alleviate some challenges regarding technical complexity that determines the success of implementing CapEx projects in brewing sector in Kenya. The contracted companies need to embrace new technologies and equipment in implementation of such projects. There is need for the team members to familiarize with technologies and technical interfaces to successfully implement CapEx projects in the brewing sector in Kenya.

Additionally, the study recommends for better management of cost and time constraints since they strongly influence successful implementation of Capex projects in brewing sector as found out from the study. The large projects (scope), limited margin leads to cost overruns when the implementation schedule is tight in order to meet the specifications which can be easily compromised thus affecting successful implementation of Capex projects in brewing sector.

Further the study recommends for effective project governance in the organization structures, stakeholders and other aspects such as top management support, stakeholders' involvement, logistical constraints, adjustment of legal framework and quality assurance. These factors in the long run determine the success of any CapEx implemented projects in the brewing sector in Kenya.

Finally, the study recommends for a flexible management of external factors which to a great extent affected successful implementation of CapEx projects in brewing sector. The external factor include; political instability, economic conditions, natural disasters and market dynamics. It requires skilful people to know how to handle such factors for the success of these projects.

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